What is claimed is:

CLAIMS

1. An isolated, enriched or purified nucleic acid encoding a MDK1 polypeptide.

2. A nucleic acid probe for the detection of a MDK1 polypeptide in a sample.

3. A recombinant nucleic acid encoding a MDK1 polypeptide and a vector or a promoter effective to initiate transcription in a host cell.

4. A recombinant nucleic acid comprising a transcriptional region functional in a cell, a sequence complimentary to an RNA sequence encoding a MDK1 polypeptide and a transcriptional termination region functional in a cell.

5. An isolated, enriched or purified purified MDK1 polypeptide.

6. An antibody having specific binding affinity to a MDK1 polypeptide.

7. A hybridoma which produces an antibody having specific binding affinity to a MDK1 polypeptide.

8. A method of detecting a compound capable of binding to a MDK1 polypeptide comprising the steps of incubating the compound with a MDK1 polypeptide and detecting the presence of the compound bound to said MDK1 polypeptide.

9. Method for treatment of an organism having a disease or condition characterized by an abnormality in a signal transduction pathway, wherein said

signal transduction pathway involves the interaction between a MDK1 receptor tyrosine kinase and a MDK1 binding partner, comprising the step of disrupting or promoting said interaction _in vivo_.

10. Method of screening potential agents useful for treatment of a disease or condition characterized by an abnormality in a signal transduction pathway, wherein said signal transduction pathway involves the interaction between a MDK1 receptor tyrosine kinase and a binding partner for said receptor, comprising the step of assaying said potential agents for those able to disrupt or promote said interaction as an indication of a useful said agent.

11. The method of claim 10 wherein said disease is selected from group consisting of neuroproliferative disorders, neurodegenerative disorders, and cancers.

12. The method of claims 10 wherein said MDK1 receptor tyrosine kinase is truncated and lacks a kinase domain.

13. The method of claim 10 wherein said MDK1 receptor tyrosine kinase is not truncated and does not lack a kinase domain.

14. The method of claims 10 wherein said MDK1 receptor tyrosine kinase is selected from the group consisting of MDK1.T1, MDK1.T2, MDK1.Δ1 and MDK1.Δ2.

15. Method for diagnosis of a disease or condition characterized by an abnormality in a signal transduction pathway, wherein said signal transduction pathway involves the interaction between a MDK1 receptor tyrosine kinase and a MDK1 binding partner, comprising

the step of detecting the level of said interaction as an indication of said disease or condition.